Research on Technological Innovation Ability Cultivation for Private College Student

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ABSTRACT

The innovative education is the trend of China's higher education reform. The implementation of innovation education in China's colleges meets the requirement of the times, the construction of an innovative country in China, and the prosperity of the nation. Based on the theoretical basis of innovation education for college students, this paper analyses the necessity and feasibility of innovation education for college students in private colleges. Taking the Department of Electronic Information Engineering in Guangzhou College of Technology and Business for example, this paper expounds its innovation education system in detail. Combining innovative spirit in education, this paper discusses the methods and experiences of cultivation innovative ability in private college. The research further enriches the research of innovation education in China and provides a reference for the practice of innovation education in private colleges, which has important theoretical and practical significance.

Keywords: private college, innovative education, technological innovation

1. INTRODUCTION

With the rapid development of technology and economy, innovation, especially technological innovation, has become the main content of the world theme today [1-6]. Talent is the first resource and innovation is the first driving force. It is the duty of colleges and universities to provide graduates with the ability of technological innovation for the society. How to provide the society with practical and innovative talents with solid professional foundation and strong practical ability, and how to ensure a high employment rate of graduates, are the most considered and researched issues for private colleges [7-11].

The Department of Electronic Information Engineering in Guangzhou College of Technology and Business explores the training mode of applied talents of technological innovation. Combining the characteristics of colleges and specialties, the research groups, firstly learn from the training concepts of innovative talents at home and abroad, then update them and put forward the training idea. The method is basic innovation - participation in competitions--application projects--publication of papers, which gradually improves students' technological innovation ability and level. We strengthen practical teaching, and build a technological innovation activities platform for students, thus innovative education can be integrated organically into the first and second classrooms. We guide, cultivate and improve students' practical and technological innovation ability. After years of exploration and practice, we have initially formed our own characteristics for the construction of students' technology innovation platform.

We achieved some results for the development of students' technology innovation activities, and the improvement of students' technology innovation ability.

2. THE CONCRETE METHODS

The technological innovation activities of college students should be popular which all students can participate in. We should form a good innovation atmosphere in the whole department and improve students' active participation. The purpose of building innovation platform is to make students participate in technological innovation activities. It is very important to solve the problem of the integration of innovative practice and classroom teaching. Innovation activity is also a kind of learning. For undergraduates, although it is not appropriate to overemphasize the innovation and economic benefits of achievements, students' innovation consciousness must be cultivated. In order to build the basic innovation training platform, we need to encourage students to participate in innovation activities and generally improve their practical ability and innovation awareness. Students can participate in higher level subject competition when they have the basic innovation ability. Under the guidance of teachers, students can gradually achieve the preliminary ability and level of putting forward design plans, developing works, optimizing design plans and writing papers according to the requirements of the project, then improve their comprehensive quality and lay a solid foundation for employment and further study.

However, it is difficult to form a system and atmosphere for students on extracurricular and technological

innovation activities in private college. There are few opportunities for students to participate in competitions, and the level of competitions is low. The practical class hours are tight in private college. In addition, the learning habits, interest and learning abilities are also different for private college students; even most of them have poor practical ability. In order to solve the problems and ensure the smooth implementation of talent training program, we have taken the following measures.

2.1. Setting up a group of guidance teachers for students' technological innovation

In order to effectively improve students' practical ability, and innovation ability level, we have set up a group of guidance teachers. The department's deputy director who is in charge of teaching actively participates in and manages the technological innovation. The team members are composed of excellent old teachers and young teachers who love students' innovative work, have solid professional foundation and rich experience in practice and guidance. The guidance group is responsible for the mobilization, organization and leadership of the students' technological innovation activities, as well as the specific guidance of the interpretation of competition topics, scheme design and development process.

2.2. Building a platform for students' technological innovation activities

In order to carry out students' technological innovation activities, we should first build a platform for innovation activities and form a good innovation atmosphere in the whole department. We construct the following three platforms which are based on basic innovation - participation in competitions - application projects- publication of papers.

2.2.1. Basic innovation platform

This is an innovation platform which most students can participate in. Through this platform, students take part in some competitions on campus, such as electronic component identification competition, time limited component welding competition, GuoGuang Cup Electronic Design Competition, etc. The establishment of the basic innovation platform has played a positive and important role in carrying out the practical activities, improving the students' team spirit, practical ability and innovation awareness.

2.2.2. Academic competition platform

The improvement of undergraduates' technological innovation ability can't only be satisfied with participating competitions on campus. The purpose of establishing academic competition platform is to guide students to participate in higher-level competitions, such as Provincial College Students' Physical Experiment Design Competition, Provincial Undergraduate Electronic Design Contest, National Undergraduate Electronic Design Contest, "Challenge Cup" National College Students Business Plan Competition, "Challenge Cup" National College Students Curricular Academic Science and Technology Works Competition, etc. We organized teams to participate in the competition and achieve good results. It has proved that as long as we take seriously and prepare actively, the students of private colleges a can also achieve good competition results.

2.2.3. Innovation and entrepreneurship platform for college students

We establish innovation and entrepreneurship platform to guide students applying for innovation and entrepreneurship projects, patents and writing academic papers. The achievements of students in the basic innovation platform and discipline competition platform can be used to apply for innovation and entrepreneurship projects, and continue the research with the project funds.

2.3. Setting up a laboratory for students' scientific and technological innovation activities, a self-study room and an exhibition room for achievements

In order to effectively carry out students' scientific and technological innovation activities, the department has opened special innovation laboratories such as electronic technology room, students' innovation room and maker space, which are equipped with instruments. Students can go to the innovation room for independent design, research and innovation according to their own interests. A self-study room has been established that maintains a quiet and healthy learning environment for postgraduates. In order to show the innovative achievements of the students and stimulate their enthusiasm, we also set up a special exhibition room for the achievements of them.

2.4. Establishing incentive measures for technological innovation of students

The participations of students in curricular competition and technological innovation activities are included for the undergraduate professional training program, and they are required to obtain at least 4 credits including publishing

papers, curricular competition, examination, etc. There are many chances that you may get bonuses.

2.5. Cooperating with enterprises to carry out technological innovation activities for students

In recent years, we have cooperated with enterprises to carry out students' scientific and technological innovation activities and achieved nice results. For example, in 2016, cooperating with Shanghai Yin Lun Company, we build the Yin Lun electronic innovation laboratory and engineering technology innovation class which is called Yin Lun class. In 2017, we cooperated with Guangzhou Yue Qian Technology Co. Ltd.to fund Maker Space and the Electronic maker Association. GuoGuang Electric Co. Ltd. sponsor GuoGuang Cup Electronic Design Competition every year, etc. Through cooperation with enterprises, we have not only obtained some equipment resources, partially solved the problem of insufficient equipment and funds for students' innovation activities, but also enriched the contents of students' technological innovation activities, which make the innovation activities continuously and persistently.

3. PROMOTION AND APPLICATION OF ACHIEVEMENTS

The achievements have been explored boldly in practice and achieved good practical results. are Students are required to attend the Provincial College Students' Physical Experiment Design Competition, Provincial Undergraduate Electronic Design Contest, National Undergraduate Electronic Design Contest, "Challenge Cup" National College Students Business Plan Competition, "Challenge Cup" National College Students Curricular Academic Science and Technology Works Competition, etc.. Practices have been proved that the training ideas and practices are completely correct, which greatly improve students' innovation ability. The innovation enthusiasm, innovation ability and level of students continues to been improved. A fine school spirit, teaching spirit and learning spirit has been formed which constructs a favourable atmosphere for cultivating study ability. The whole department has formed a innovation atmosphere of loving innovation, actively applying for projects, and bravely participating in competitions. Ranking in discipline competition above provincial level has a great impact on the later work and employment of the winning students. The enterprises and institutions prefer the graduates who participate in the science and technology competitions in school. All the students who have won prizes in the competitions of subjects above the provincial level have got ideal jobs after graduation.
In addition, for the students who have won the prize in the competition, the department requires them to apply for the innovation and entrepreneurship project of college students above the school level. Under the guidance of the teacher, they will continue to research and improve their works. Students continuously develop and perfect devices and technologies and try to apply for patents. Their graduation designs and papers can be finished on the base of works. The employment rate of two consecutive undergraduate graduates has reached more than 98%. Employers are generally satisfied with the comprehensive quality of our undergraduate graduates.

4. CONCLUSION

To sum up, it is completely correct for us to build a platform for students' technological innovation combined with the conditions of the school and the characteristics of students in private college, which carry out students' curricular competition and technological innovation activities, and improve students' practical ability and technological innovation ability according to the training objectives of application-oriented talents. Practice has also proved that the establishment of innovation platform provides valuable training opportunities for private college students to carry out innovation activities, which expands the vision, enhances the self-confidence, cultivates the innovation spirit and consciousness, and improves their innovation ability. It also promotes the improvement of teaching and learning styles in private college.

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